

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A system management method performed at a system management apparatus for associating at least a process object and at least a process that should be executed for each process object with each node in a tree structure, and operating each node based on the tree structure so as to manage the process object and the process, comprising:

a user registration step of storing, in a database storing means, a user ID to be uniquely assigned to each registered user that performs operations for a node;

a node setting step, performed at a processor of the system management apparatus, of providing a general node corresponding to the process object and a function node that is a program for performing a process, setting the function node as a child node of the general node corresponding to the process object for which the process corresponding to the function node should be performed, and setting the general node as a parent node of the function node, and storing information of the set child node into the database storing means by associating the information with the general node that is the parent node;

an authority setting step, performed at the processor of the system management apparatus, of setting registered user operation authority of each user ID for each of the general nodes, and storing the registered user operation authority into the database storing means by associating the registered user operation authority with the general node, and setting, function node operation authority for each of function nodes, and storing the function node operation authority in the database storing means by associating the function node operation authority with the general node;

a process execution step, performed at the processor of the system management apparatus, of, when execution of the process corresponding to the function node is requested

by the registered user, causing the function node to execute the process only when the process is permitted by the registered user operation authority, of the registered user requesting the process, set in the general node that is a parent node of the function node when execution of the process corresponding to the function node is requested by any function nodes, causing the function node to execute the process only when the process is permitted by the function node operation authority, of the function node that requests the process, set for the general node that is the parent node of the function node;

setting, at the processor of the system management apparatus, for each general node, non-registered user operation authority that is operation authority of a non-registered user and storing the non-registered user operation authority in the storing means by associating the non-registered user operation authority with the general node; and

causing, at the processor of the system management apparatus, the function node to execute the process only when the process is permitted by the non-registered user operation authority set for the general node that is the parent node of the function node, when execution of the process corresponding to the function node is requested by the non-registered user.

Claim 2 (Canceled).

Claim 3 (Previously Presented): The system management method as claimed in claim 1, comprising:

setting, for each of the general nodes, function node operation authority for each function node, and storing the function node operation authority in the storing means by associating the function node operation authority with the general node; and

causing the function node to execute the process only when the process is permitted by the function node operation authority, of the function node that requests the process, set

for the general node that is the parent node of the function node when execution of the process corresponding to the function node is requested by any of function nodes.

Claim 4 (Previously Presented): The system management method as claimed in claim 1, comprising:

sending a message in which at least any one of the function node or the user is a sending origination and at least any one of function nodes is a destination, detecting presence or absence of execution of a predetermined event process at the sending origination, and sending the message received from the sending origination according to the detection result; and

receiving the message to the destination, when receiving the message, sending a message having the destination as a sending origination to the destination or causing the destination to execute a predetermined event process according to a condition that is set beforehand.

Claim 5 (Previously Presented): The system management method as claimed in claim 4, comprising:

sending and receiving an asynchronous message using a queue that temporarily stores the message.

Claim 6 (Previously Presented): The system management method as claimed in claim 5, comprising:

sending or receiving the asynchronous message according to a priority set for each message when sending or receiving the asynchronous message.

Claim 7 (Previously Presented): The system management method as claimed in claim 4, comprising:

determining whether the received message is a recursive message from the own node based on sending origination information of the message, and recursively performing message sending or the event process based on the sending origination information of the message when the message is the recursive message from the own node.

Claim 8 (Previously Presented): The system management method as claimed in claim 4, comprising:

receiving only a message sent from a sending origination set in a predetermined access list.

Claim 9 (Currently Amended): A system management apparatus for associating at least a process object and at least a process executed for each process object with each node in a tree structure, and operating each node based on the tree structure so as to manage the process object and the process, comprising:

a ~~storing means~~ database configured to store each piece of information of a general node corresponding to the process object, a function node corresponding to the process, and a registered user for operating the general node or the function node;

user registration means for performing a process for registering a user ID to be uniquely assigned to each registered user and storing the user ID in the ~~storing means~~ database;

node number assigning means for uniquely assigning a node number to each of the general node and the function node, and storing the node number in the ~~storing means~~ database by associating the node number with the general node or the function node;

node setting means for setting the function node as a child node of the general node corresponding to the process object for which the process corresponding to the function node should be performed, and setting the general node as a parent node of the function node, and storing information of the set child node into the ~~storing means~~ database by associating the information with the general node that is the parent node;

authority setting means for setting registered user operation authority for each registered user for each of the general nodes, and storing the registered user operation authority into the ~~storing means~~ database by associating the registered user operation authority with the general node;

process execution means for, when execution of the process corresponding to the function node is requested by the registered user, causing the function node to execute the process only when the process is permitted by the registered user operation authority, of the registered user requesting the process, set in the general node that is a parent node of the function node,

wherein the authority setting means provides a registered user in a general node with registered user operation authority including management authority for performing user registration for a predetermined node, and permits the registered user to set registered user operation authority for other registered user within a limit of the registered user operation authority of the registered user,

the authority setting means includes means for setting, for each general node, non-registered user operation authority that is operation authority of a non-registered user that is not registered by the user registration means, and storing the non-registered user operation authority in the ~~storing means~~ database by associating the non-registered user operation authority with the general node, and

the process execution means includes means for, when execution of the process corresponding to the function node is requested by the non-registered user, causing the function node to execute the process only when the process is permitted by the non-registered user operation authority set for the general node that is the parent node of the function node.

Claim 10 (Canceled).

Claim 11 (Currently Amended): The system management apparatus as claimed in claim 9, wherein:

the authority setting means includes means for further setting, for each of the general nodes, function node operation authority for each function node, and storing the function node operation authority in the ~~storing means~~ database by associating the function node operation authority with the general node; and

the process execution means includes means for, when execution of the process corresponding to the function node is requested by any of function nodes, causing the function node to execute the process only when the process is permitted by the function node operation authority, of the function node that requests the process, set for the general node that is the parent node of the function node.

Claim 12 (Previously Presented): The system management apparatus as claimed in claim 9, comprising:

message sending means for sending a message in which at least any one of the function node or the user is a sending origination and at least any one of function nodes is a destination; and

receiving means for receiving the message to the destination,

the message sending means including means for detecting presence or absence of execution of a predetermined event process at the sending origination, and sending the message received from the sending origination according to the detection result, and

the receiving means including means for, when receiving the message, sending a message having the destination as a sending origination to the destination or causing the destination to execute a predetermined event process according to a condition that is set beforehand.

Claim 13 (Original): The system management apparatus as claimed in claim 12, wherein:

each of the message sending means and the message receiving means includes means for sending and receiving an asynchronous message using a queue that temporarily stores the message.

Claim 14 (Original): The system management apparatus as claimed in claim 13, wherein:

each of the message sending means and the message receiving means includes means for sending or receiving the message according to a priority set for each message when sending or receiving the asynchronous message.

Claim 15 (Previously Presented): The system management apparatus as claimed in claim 12, wherein the message receiving means includes:

means for, when receiving the message, determining whether the message is a recursive message from the own node based on sending origination information of the message; and

means for recursively performing message sending or the event process based on the sending origination information of the message when the message is the recursive message from the own node.

Claim 16 (Previously Presented): The system management apparatus as claimed in claim 12, wherein the message receiving means includes means for receiving only a message sent from a sending origination set in a predetermined access list.

Claim 17 (Currently Amended): A computer-readable recording medium including a program, which when executed by a computer causes the computer to perform a method for associating at least a process object and at least a process executed for each process object with each node in a tree structure, and operating each node based on the tree structure so as to manage the process object and the process, the method comprising:

registering a user ID to be uniquely assigned to each registered user that performs operations for a general node corresponding to the process object or for a function node corresponding to the process, and storing the user ID in a ~~storing means~~ database;

uniquely assigning a node number to each of the general node and the function node, and storing the node number in the ~~storing means~~ database by associating the node number with the general node or the function node;

setting the function node as a child node of the general node corresponding to the process object for which the process corresponding to the function node should be performed, and setting the general node as a parent node of the function node, and storing information of the set child node into the ~~storing means~~ database by associating the information with the general node that is the parent node;

setting registered user operation authority for each registered user for each of the general nodes, and storing the registered user operation authority into the ~~storing means~~ database by associating the registered user operation authority with the general node;

causing the function node to execute the process only when the process is permitted by the registered user operation authority, of the registered user requesting the process, set in the general node that is a parent node of the function node, when execution of the process corresponding to the function node is requested by the registered user;

providing a registered user in a general node with registered user operation authority including management authority for performing user registration for a predetermined node, and permitting the registered user to set registered user operation authority for other registered user within a limit of the registered user operation authority of the registered user;

setting, for each general node, non-registered user operation authority that is operation authority of a non-registered user and storing the non-registered user operation authority in the ~~storing means~~ database by associating the non-registered user operation authority with the general node; and

causing the function node to execute the process only when the process is permitted by the non-registered user operation authority set for the general node that is the parent node of the function node, when execution of the process corresponding to the function node is requested by the non-registered user.

Claim 18 (Canceled).

Claim 19 (Currently Amended): A system management apparatus for associating at least a process object and at least a process executed for each process object with each node

in a tree structure, and operating each node based on the tree structure so as to manage the process object and the process, comprising:

a ~~storing means~~ database configured to store each piece of information of a general node corresponding to the process object, a function node corresponding to the process, and a registered user for operating the general node or the function node;

a ~~user registration unit~~ processor configured to perform a process for registering a user ID to be uniquely assigned to each registered user and store the user ID in the ~~storing means~~ database;

a ~~node number assigning unit~~ the processor configured to uniquely assign a node number to each of the general node and the function node, and store the node number in the ~~storing means~~ database by associating the node number with the general node or the function node;

a ~~node setting unit~~ the processor configured to set the function node as a child node of the general node corresponding to the process object for which the process corresponding to the function node should be performed, and set the general node as a parent node of the function node, and store information of the set child node into the ~~storing means~~ database by associating the information with the general node that is the parent node;

a ~~authority setting unit~~ the processor configured to set registered user operation authority for each registered user for each of the general nodes, and store the registered user operation authority into the ~~storing means~~ database by associating the registered user operation authority with the general node; and

a ~~process execution unit~~ the processor configured to, when execution of the process corresponding to the function node is requested by the registered user, cause the function node to execute the process only when the process is permitted by the registered user

operation authority, of the registered user requesting the process, set in the general node that is a parent node of the function node, wherein

the ~~authority setting unit~~ is processor configured to provide a registered user in a general node with registered user operation authority including management authority for performing user registration for a predetermined node, and permit the registered user to set registered user operation authority for other registered user within a limit of the registered user operation authority of the registered user,

the ~~authority setting unit~~ is processor configured to set, for each general node, non-registered user operation authority that is operation authority of a non-registered user that is not registered by the user registration ~~unit~~, and storing the non-registered user operation authority in the ~~storing means~~ database by associating the non-registered user operation authority with the general node, and

the ~~process execution unit~~ is processor configured to, when execution of the process corresponding to the function node is requested by the non-registered user, cause the function node to execute the process only when the process is permitted by the non-registered user operation authority set for the general node that is the parent node of the function node.